

Pre-Workshop Seminar: Bioretention Garden Design, Installation and Maintenance

**2012 Post-Construction Stormwater
Management Workshop**

Lincoln, NE



Introductions

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WHAT is a Bioretention *Garden*?

- A large rain garden, but with specially-amended soils, and an underdrain system
- Used to capture and treat stormwater runoff
- The term “garden” is important; the term “bio” is critical
- Commonly used as part of the stormwater management system for commercial and public developments
- May also include runoff storage



Critical Consideration: Potential Design Objectives

- Enhance water quality through filtration and plant uptake
- Reduce peak runoff quantities
- Storage to meet regulatory requirements (address WQv and/or additional volumes associated with significant storm events)



Workshop Purpose

- Provide information about bioretention:
 - Function
 - Design
 - Construction
 - Management
- Share collective lessons learned from local/regional bioretention experiences
- Open the dialogue for future effective design and implementation of stormwater best management practices



Workshop Context

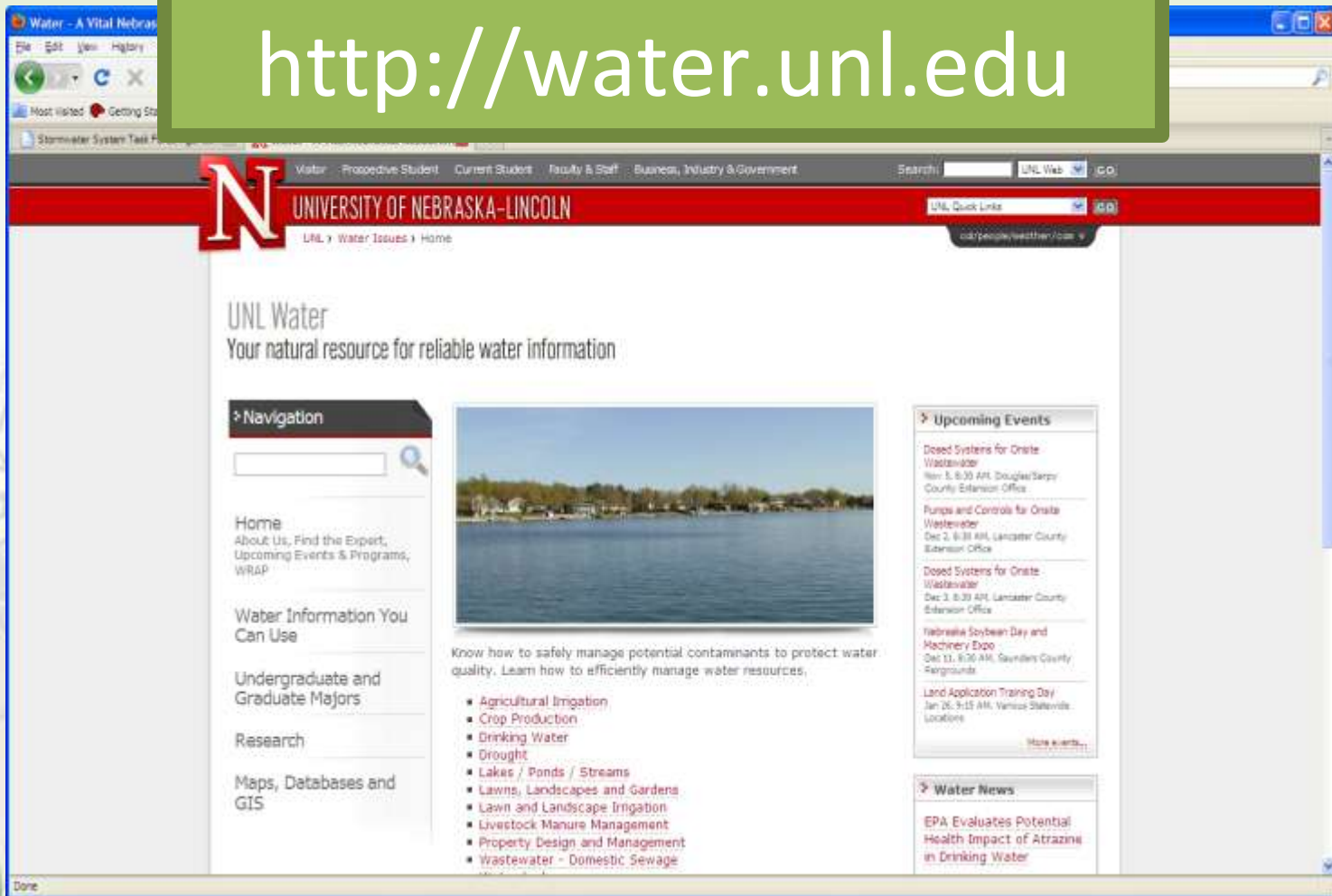
- Successful projects must fully integrate expertise of design professionals and green industry
- Bioretention **system** design requires registered design professionals
- Reinforce commitment to quality installation and materials
- Commitment to quality maintenance and management must be fully acknowledged and budgeted



Workshop Context

Additional Resources

<http://water.unl.edu>



The screenshot shows the UNL Water website interface. At the top, there is a navigation bar with the UNL logo and the text "UNIVERSITY OF NEBRASKA-LINCOLN". Below this, the main heading reads "UNL Water" and "Your natural resource for reliable water information". The page is divided into several sections: "Navigation" with a search bar, "Home" with a brief description, "Water Information You Can Use", "Undergraduate and Graduate Majors", "Research", and "Maps, Databases and GIS". A central image of a lake is accompanied by the text: "Know how to safely manage potential contaminants to protect water quality. Learn how to efficiently manage water resources," followed by a list of topics including Agricultural Irrigation, Crop Production, Drinking Water, Drought, Lakes / Ponds / Streams, Lawns, Landscapes and Gardens, Lawn and Landscape Irrigation, Livestock Manure Management, Property Design and Management, and Wastewater - Domestic Sewage. On the right side, there are sections for "Upcoming Events" and "Water News".

UNL Water
Your natural resource for reliable water information

Navigation

Home
About Us, Find the Expert,
Upcoming Events & Programs,
WRAP

Water Information You
Can Use

Undergraduate and
Graduate Majors

Research

Maps, Databases and
GIS

Know how to safely manage potential contaminants to protect water quality. Learn how to efficiently manage water resources,

- Agricultural Irrigation
- Crop Production
- Drinking Water
- Drought
- Lakes / Ponds / Streams
- Lawns, Landscapes and Gardens
- Lawn and Landscape Irrigation
- Livestock Manure Management
- Property Design and Management
- Wastewater - Domestic Sewage

Upcoming Events

Dosed Systems for Onsite
Wastewater
Nov. 5, 8:00 AM, Douglas/Searcy
County Extension Office

Pumps and Controls for Onsite
Wastewater
Dec. 2, 8:30 AM, Lancaster County
Extension Office

Dosed Systems for Onsite
Wastewater
Dec. 3, 8:30 AM, Lancaster County
Extension Office

Nebraska Soybean Day and
Machinery Expo
Oct. 11, 8:30 AM, Saunders County
Fairgrounds

Land Application Training Day
Jan. 26, 9:15 AM, Veneta Stateville
Locations

Water News

EPA Evaluates Potential
Health Impact of Atrazine
in Drinking Water

Workshop Context

Additional Resources

- Property Design and Management

The screenshot displays the UNL Water website interface. At the top, the navigation bar includes 'UNL', 'UNL Water', and 'Property Design Home'. Below this, a secondary navigation bar lists 'Home', 'Water Information', 'Students', 'Research', 'Maps & Data', and 'Find a Faculty Staff Expert'. The main content area features a red header for 'UNL Water: Property Design' with the tagline 'Your natural resource for reliable property design information'. A 'Navigation' sidebar on the left lists various topics such as 'Property Design Home', 'Conservation Subdivision Design', and 'Water Information'. The main content area highlights a 'Virtual Rain Garden Simulation' and a '2012 Post-Construction Stormwater Workshop'. A right-hand sidebar contains social media links for Facebook and YouTube, and a section titled '26 people like University of Nebraska Stormwater Group' with profile pictures of participants.

UNL Water: Property Design
Your natural resource for reliable property design information

Navigation

- Property Design Home
- Publications
- Conservation Subdivision Design
- Green Roof Design and Technologies
- Land Planning Standards
- Low Impact Development
- Soil Erosion and Sediment Control
- Stormwater Regulations

Water Information

Look for March 2012 "Did You Know?" tips at links below:

- Agricultural Irrigation **NEW!**
- Crop Production **NEW!**
- Drinking Water **NEW!**
- Drought
- Lakes / Ponds / Streams
- Lawn and Landscape Irrigation **NEW!**

Virtual Rain Garden Simulation

Want to know exactly what a rain garden is and how it works? Click [here](#) to experience a virtual simulation of how a rain garden works. Within the simulation you will learn definitions, the process that a rain garden goes through from dry conditions to when it rains, and also understand what is going on below the surface of the garden itself. Enjoy!

2012 Post-Construction Stormwater Workshop

Join us in Lincoln for the Nebraska Post-Construction Stormwater Workshop on March 21, 2012 and pre-workshop Restoration Short Course on March 20, 2012. The workshop is intended to provide an opportunity for stakeholders to exchange information, resources and technology in the field of post-construction stormwater management. The goal of the conference is to increase the knowledge and capacity of participants in the areas of design, implementation, policy and education in the field of post-construction stormwater management. Lunch is included in your registration.

The 2012 Nebraska Post-Construction Stormwater Workshop will host two great keynote speakers: Dr. Robert Rozean, director with the University of New Hampshire's Stormwater Center and Jim Schussler, Land Use Planner and Landscape Architect with BNIM in Kansas City, who helped lead the Green Rebuild Initiative in Greensburg, KS. There will also be four tracks of presentations (March 21st) covering local and current information, each targeted at specific groups within the area of post-construction stormwater. These tracks include:

- BMP Case Studies
- Research Topics
- From the Developer: Low Impact Development

26 people like University of Nebraska Stormwater Group

Did, Michael, Jorge, Arthur, Bob, Joe

Workshop Context

Additional Resources

- [//water.unl.edu/propertydesign](http://water.unl.edu/propertydesign)
 - Information on BMP's, green roofs, etc.
 - Previous presentation handouts and manual chapter copies
 - Facebook group link
 - Coming soon - LID Atlas
 - Future Updated plant information
 - Virtual rain garden animation



Workshop Context

Terminology Confusion

- Important to understand specific criteria and terminology for BMP's (ex.- when is a rain garden a bioretention garden?)*



** NC State University compared to UNL*



Workshop Context

Bio-what?

- Bioretention – 109,000*
- Rain Garden – 197,000,000*

Which one may ultimately do more good for stormwater quantity management and enhanced quality?

*Yahoo Search Results(as of 3/9/12)

